

door after the horses have fled. The investment dollars will already have flowed elsewhere.<sup>10</sup>

Sharing also detracts from consumer welfare by giving some providers -- those who share in our earnings but don't have to share theirs, who benefit from asymmetrical regulation vis-a-vis the LECs, and who are free to discriminate and to enter and exit markets at will -- financial and marketing advantages over us that have nothing to do with greater efficiency or responsiveness to customers.

Building the NII is good business as well as good public policy. We have many competitors who'd like to build it before we do. They'll argue that our ability and incentive to invest in our networks needs to be constrained. For our competitors, sharing kills two birds with one stone: we are further constrained from building the NII; they build it with our revenues. Consumers are harmed when regulators create artificial advantages and disadvantages for competitors. Inefficient providers are encouraged to enter markets, and consumers as a whole pay higher prices. Regulatory oversight will remain appropriate for the shrinking number of monopoly services. But "managed competition" generally harms consumers more than it helps them.

In return for an end to sharing, we are willing to forego the assurance of the LFAM and many exogenous cost adjustments. After all, we believe that a good regulatory plan

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<sup>10</sup> See Darby Associates, "Price Cap Reform, Financial Incentives and LEC Investment," filed with USTA's Comments in this docket.

is one that recognizes the increasing riskiness of investment decisions; protects customers from the risk of investments that may turn out to be uneconomic or unsuccessful; and provides shareholders new incentives to attract sufficient investment in the public telephone network. To meet those objectives, the plan must also shift the risk of poor investment decisions and the rewards of good investment decisions to shareholders. The LFAM should not be eliminated unless sharing is also eliminated: the increase in our downside risk must be balanced with an increase in potential returns, or investors will take their money elsewhere.

Originally, the Commission adopted the backstop mechanisms because it was concerned that the uniform nationwide productivity factor it selected for price cap LECs would not be "perfectly accurate."<sup>11</sup> If that factor was too low, sharing would offset it; if it was too high, the LFAM would remedy it. Although studies have not borne out the Commission's original concern -- they show the productivity factor was, if anything, too high<sup>12</sup> -- we believe there is an independent, critical reason to eliminate the backstop mechanisms: they are a deterrent to making the investments needed to build the NII.

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<sup>11</sup> Policy and Rules Concerning Rates for Dominant Carriers, 5 FCC Rcd. 6786, para. 120 (1990).

<sup>12</sup> See L. R. Christensen, P. E. Schoech, and M. E. Meitzen, "Productivity of the Local Operating Telephone Companies Subject to Price Cap Regulation," filed with USTA's Comments in this docket.

Baseline Issue 1b: Whether the goal of providing universal service to all geographic areas and of equal type and quality for all Americans at affordable prices is being met, or whether we should revise the LEC price cap plan to ensure the provision of universal service.

The goal of providing "universal service" as traditionally defined has been nearly achieved. Competition, however, has made the traditional means of support for universal service unsustainable. To preserve and expand universal service, the first imperative is that the Commission grant us pricing flexibility in competitive markets. The second imperative is to revisit other rules that require costs to be recovered in irrational ways.

Our service to high-cost areas has been kept afloat by revenues from low-cost areas. If we aren't allowed to compete fairly in the most lucrative markets, we cannot support the high-cost areas that our competitors will have no interest in entering. No new business opportunity will offset competitive losses anytime in this decade. The cost of serving towns like Stovepipe Wells, California and Parumph, Nevada isn't high because we put in too much plant or made wrongheaded investment decisions. These are costs that regulators obligated us to incur because the areas fell within our franchise. They were our part of a social contract that's now up for renegotiation.

If the Commission tries to "manage" such subsidies as it did before customers had a choice of providers, it will continue to encourage bypass and threaten universal service by increasing the cost burden on customers who remain as well as the carrier with the obligation to serve. It will be tempting to

deal only with the explicit subsidies, such as the Carrier Common Line (CCL) charge. Dealing with explicit subsidies is necessary but insufficient. It ignores the way that markets operate. The entire contribution above long-run incremental cost from services such as transport to fixed costs such as the loop, from hitherto profitable markets to unprofitable ones, is at risk. Buyers with competitive choices will avoid services that are priced above the market whether the reason for the above-market price is implicit or explicit.

Today, universal service, in the form of below-cost access to basic telephone service, is provided to 95.2% of all households in our serving territory.<sup>13</sup> Universal service is supported by subsidies provided through averaged pricing and below-cost pricing for residential service.<sup>14</sup> In the interstate jurisdiction, the primary explicit subsidy to basic exchange service has been through the CCL charge. The Commission has acknowledged since the early 1980s that the usage-based recovery of usage-insensitive costs sends the wrong price signals, but the CCL charge remains the only permissible way to recover a large

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<sup>13</sup> U.S. Census Bureau, Current Population Survey, March 1993.

<sup>14</sup> Telephone service prices are averaged even though costs and profitability vary between customers for numerous reasons, including geographical location of the customer (rural v. urban), usage (high v. low usage), and loop length.

part of these costs.<sup>15</sup> There are also implicit mechanisms, such as separations and cost allocation rules which create above-cost toll and access services in some areas and below-cost services in others.

"Universal service," as regulators have traditionally defined it, has been largely achieved. But we have no intention of resting on our laurels. We have made a commitment to assure affordable broadband connectivity to all schools, libraries, hospitals, and clinics in our serving areas, by providing them with their own discounted rates. We have publicly committed \$100 million to a program for wiring schools and libraries. By the end of 1996, we will have wired each of the nearly 7,400 public K-12 schools, public libraries, and community colleges in Pacific Bell territory for computer communications and video conferencing. Pending approval by the California Public Utilities Commission (the CPUC), the service at these locations will be installed for free, and usage charges will be waived for a year after installation.<sup>16</sup> We will work with regulators to establish a discounted education access rate to apply thereafter. In California, the CPUC is investigating the establishment and implementation of a Schools and Libraries Information

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<sup>15</sup> See Petitions for Waiver of Various Sections of Part 69 of the Commission's Rules, 104 F.C.C.2d 1132, para. 9 (1986): "This system thus provides incentives for high-volume users to seek alternative methods of access to their IXCs under which they pay charges more in line with the costs they cause in obtaining access."

<sup>16</sup> Advice Letter No. 16965, filed April 8, 1994.

Technologies Grant Program, which would provide additional funding.

Our commitment to a ubiquitous, high-quality network with an evolving package of basic features is one that will continue for all of our customers, not just in urban or high profit locations. We support the continuation of explicit subsidies, such as Lifeline and Telecommunications Relay Service, that are targeted to assure that specific users have access to the network. This is no small commitment. Pacific Bell serves more Lifeline customers than all other local exchange carriers in America combined.

However, subsidies to customers who don't need them are becoming difficult to sustain. We believe the only way to achieve significant increases in the rate of subscription to basic telephone service in our area would be to make rates more cost-causative, while continuing to target subsidies to the needy.

We commissioned the Field Research Corp. to interview the small minority of customers who do not subscribe to telephone service to learn why, in spite of the generous subsidies in place, telephone penetration isn't 100%.<sup>17</sup>

The upshot of the Field Research study results is that for most non-customers, the cost of basic exchange access isn't perceived as an obstacle to obtaining telephone service. About

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<sup>17</sup> The Field Research Corp. study was submitted to the CPUC's monitoring files in compliance with Ordering Para. 3.d. of D.91-07-056 (dated July 24, 1991).

two-thirds of the non-customers who were surveyed have had telephone service in the past but do not have it now. Two reasons they no longer have service stand out: inability to afford high long distance charges; and high mobility, which may translate into frequent reconnect charges. The obstacle of high long distance charges bears out the conclusion of econometric studies that increased basic service charges offset by reduced toll charges would cause overall telephone penetration to rise, not fall. To mitigate the obstacle of long distance charges, we intend to work with local regulators to give customers more control over how much they spend, for example by allowing them to determine in advance how much money they will spend each month on long distance. Pricing flexibility, which would allow more prices to reflect their real costs, may also benefit universal service. To remedy the reconnect charge problem, we have proposed to the CPUC that telephone installation charges for Lifeline customers with measured service be reduced about 40%.<sup>18</sup>

Of the 28% of non-customers who have never had telephone service and never tried to get it, Field concludes that half don't feel inconvenienced by the absence of a telephone. We think that if long distance charges fell and the value of exchange access increased, telephone penetration would increase among such customers as well. Demand may be stimulated when the value of a service to the customer increases more than its price.

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<sup>18</sup> Alternative Regulatory Frameworks for Local Exchange Carriers, I. 87-11-033, Rebuttal Testimony of G. L. Oliver, Exhibit 901, p. 12, dated June 29, 1992.

Economists refer to this as a "hedonic price reduction." In large part hedonic price reductions account for the increase in universal service during the 1980s and early 1990s: by rebalancing toll and exchange access rates to better reflect their costs, regulators increased the value of telephone service for everyone.

Much can still be done to make rates more cost-causative and increase telephone penetration. The most obvious step, which we discuss below (p. 51), would be to rebalance CCL and EUCL rates so that traffic sensitive rates don't have to recover nontraffic sensitive costs. Econometric studies show that in contrast with toll services, basic exchange service has very low price elasticity. When the Subscriber Line Charge was imposed, some consumer advocates predicted that a large number of households would drop off the telephone network. The opposite occurred. Above-cost toll rates reduce the value of basic exchange access and discourage telephone penetration. Telephone penetration increased throughout the 1980s largely because toll rates fell. To the degree that exchange access rates are kept below cost with subsidies from above-cost toll rates, consumer welfare is reduced and universal service suffers. As Professor Jerry Hausman writes, "[t]he subsidy has the perverse economic and policy results of both decreasing economic efficiency and decreasing the number of households who subscribe to telephone service."<sup>19</sup> Pricing flexibility could increase

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<sup>19</sup> California Public Utilities Commission, Alternative Regulatory Framework for LECs, I.87-11-033, Phase III/IRD, Testimony of Professor Jerry A. Hausman, p. 21.



telephone penetration by reducing the subsidies from toll to basic exchange.

Policies that promote rate averaging must therefore be scrutinized. In many cases they won't stand up to scrutiny. Due to demographic shifts, for example, customers in many rural areas of California are now among the most affluent in the state. Yet they continue to benefit from rate averaging, and if they are customers of high-cost companies (which we aren't, but there are many in California and Nevada) they benefit from explicit subsidy mechanisms such as pooling. Of course, existing subsidies are a result of both state and federal policies. Any decision the Commission makes with respect to universal service must take into account state policies as well. Conflicting state and federal policies, to the extent not resolved through federal legislation, should be resolved through a Joint Board.

The Commission, most likely through a Joint Board, must determine the actual level of subsidy required and the proper funding mechanisms to encourage universal service. In addition to the explicit subsidies, implicit subsidies must be identified, eliminated where possible, and the remainder properly funded. The current implicit mechanisms are unsustainable with competition. LEC prices are already responding to toll and access competition. As these prices move toward cost, they will no longer provide a source of contribution to markets and customers where our costs exceed our revenues.

Any funding mechanisms of the future should be explicit. One acceptable mechanism would be an assessment on all

providers. Here, work is only beginning on designing an appropriate mechanism.<sup>20</sup> But it is premature to focus on any one funding process at this time. The Commission should consider all responsible proposed mechanisms to fund universal service.

Any adopted approach to universal service funding must recognize our obligations as the carrier of last resort. This obligation predates competition and price cap regulation. We are required to have capacity available to serve, upon demand, all prospective customer requests for service within a large geographical area, and to do so at averaged prices which do not necessarily cover the cost of service to the particular customer. The franchise and carrier of last resort obligations still imposed on the LECs compel us to undertake a higher level of investment than would occur if we could pick and choose customers as the CAPs and IECs do today. We do not generally have the opportunity to wait for demand to develop, and then make the investment. In its rulings on DS3 individual case basis ("ICB") offerings and dark fiber, for example, the Commission has made clear its view that we are obliged by the non-discrimination provisions of the Act to make all of our services generally available, under averaged rates, to even the highest-cost customers.

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<sup>20</sup> See, for example, Eli M. Noam, "NetTrans Accounts: Reforming the Financial Support System for Universal Service in Telecommunications," Columbia Institute for Tele-Information, Working Paper Number 648; Bruce Egan, "Funding the Public Telecommunications Infrastructure," presented at the Universal Service Symposium, October, 1993.

Presumably, millions of customers outside of today's high profit markets will continue to rely on us as the carrier of last resort. Our provision of service to those customers has been kept afloat by revenues from the very services that are now subject to competition. As those revenues are threatened, the cost of remaining on the network for everyone else rises. So pricing flexibility is a short-term imperative to preserve universal service. The contribution from profitable markets to unprofitable ones is eroding much faster than the Commission is becoming aware of the problem. In just three or four years after competitive entry, we have already lost market power in some of our metropolitan market areas. The effects of mandatory collocation have not even been felt. This loss represents as much share as AT&T lost in the switched long distance market after almost two decades of legal long distance competition.

Our competitors don't have to provide below-cost service to areas or customers that have been deemed by regulators to deserve a subsidy. They only have to target the high-profit metropolitan markets which are highly concentrated. 30% of our business revenues come from the 0.5% of our serving territory located in or near the major downtown areas. 1.5% of our land area accounts for 60% of the business calling revenues. 5.9% of our land area accounts for 85% of business revenues. 1% of our business customers account for 45% of our statewide intraLATA toll volumes; 10% drive 75% of the total. Residential service is similarly concentrated. Approximately 25% of all residential customers generate 75% of our residence intraLATA toll revenues.

The fact that competition doesn't exist in most of our geographic serving territory is no sign of market power. We serve the low-profit and non-profit markets because they were part of a franchise that included high-profit markets. That franchise is ending, but our obligation to serve the underpriced high-cost markets isn't. In unattractive markets that a firm serves because of regulatory fiat based on averaged prices a 100% market share is a symptom of a lack, rather than the possession, of market power.

As the Commission considers how to spread the universal service burden in a competitive environment, it must allow us to reflect and recover the historical costs of that burden in a rational way. Today, unrealistic depreciation schedules prevent our earnings from reflecting the economic lives of our assets. This penalizes us in two ways. First, it significantly overstates our rate of return and results in sharing of earnings when those earnings aren't excessive. Below (p. 30), for example, we show that our rate of return would be well below the sharing levels if we were allowed to use the same depreciation schedules allowed AT&T. Commissioner Barrett has pointed out the distortions these unrealistic depreciation schedules invite in returns (below, p. 48). Second, it jeopardizes recovery of the full cost of the investments we were obligated to make to provide universal service. The Commission should allow our PCIs to reflect the economic lives of our assets. The depreciation reserve deficiency, currently over \$1B, could be applied against years of productivity adjustments. If sharing continues, then at

the very least our depreciation expenses should be adjusted so that our earnings, and our depreciation schedules, both reflect reality.

Baseline Issue 1c: We request that interested parties submit data and analysis regarding the rate at which price-cap LECs are replacing copper wire with fiber optic cable and increasing the bandwidth capacity of copper wires with signal compression techniques and other technologies.

Exhibit 1 displays the deployment of fiber and copper by Pacific Bell and Nevada Bell for the years 1988 through 1993. The year-over-year comparisons show that the deployment rate for fiber under price cap regulation has equalled or exceeded fiber deployment before price cap regulation. Over the same period, the deployment of copper gradually diminished. The proportion of increase for fiber and decrease for copper are in line with the difference between the enormous installed base of copper and the small but growing fiber base. See Exhibit 1.

Also, during price cap regulation, Pacific Bell began deployment of High Bit Rate Digital Subscriber Line (HDSL) service, a signal compression technology that effectively increases the bandwidth of copper. HDSL is used in the subscriber transport arena where appropriate; however, the quantity deployed so far in Pacific Bell's network has been insignificant. Nevada Bell is actively deploying HDSL and currently 10% of its hicap circuits to end users are on HDSL.

Another signal compression technology used by Pacific Bell is ISDN. Unlike HDSL, this technology is now widely deployed within Pacific Bell's area and to a lesser extent within

Nevada Bell's. Currently, 27% of Pacific Bell's switches are equipped for ISDN and we project almost 100% by the end of 1997. 67% of Nevada Bell's switches are ISDN-equipped.

Pacific Bell has announced plans to upgrade its copper-based residential telephone lines with a hybrid fiber optics-coaxial network. This broadband-capable network will enable the provision of video, voice and data services on an integrated basis. Subject to the Commission's approval of our Video Dial Tone (VDT) Section 214 application, we will offer video transport on a common carrier basis for video information providers as early as the end of 1994. Transition of traditional telephony applications to this new infrastructure should begin in 1995.

**B. Baskets and Bands.**

In "Baseline Issue 2," the Commission seeks comment on whether the rules relating to the LEC price cap baskets and bands should be revised. Specifically, the Commission asks whether current or revised price cap baskets and bands would reflect expected levels of competition for LEC interstate services, or other relevant common characteristics. For example, the Commission requests information and comment on whether differences in pricing behavior within and among baskets evidences different levels of competition. Notice, para. 42.

The Commission acknowledges that the purpose of baskets is to prevent the LEC from increasing prices of less competitive

services in order to decrease prices of competitive services. Notice, para. 38. Within each basket, it adds, "the carrier has the incentive to change prices, in order to increase efficiency and maximize its profits." Id. In the original price cap proposal for the LECs, just two baskets were proposed.<sup>21</sup> Yet now price cap baskets, bands, and sub-bands have proliferated far beyond what is needed to accomplish the Commission's stated purpose of preventing anticompetitive behavior.

	<u>LEC Price Cap Plan</u>		
	<u>1989 Proposed</u>	<u>1991 Adopted</u>	<u>1994 Actual</u>
Baskets	2	4	4
Bands	-	7	11
Subindexes	-	2	9
Sub-subindexes	-	-	6

This seems to have been brought about not so much by design as by fear of the shift toward zero-based regulation that price caps actually implies. Zone pricing, for example, was a positive step away from statewide geographic price averaging, but it was not a step toward pricing based on economic (long-run incremental) costs.

This ROR overlay dulls the incentives to be efficient and responsive to the marketplace. It prevents carriers from pricing based on economic costs and potential returns. The multiplicity of "bands" and "baskets," and the restrictions on

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<sup>21</sup> See Policy and Rules Concerning Rates for Dominant Carriers, 4 FCC Rcd. 2873, para. 51 (1989).

"zone pricing" flexibility are not all necessary to prevent cross-subsidy. Most important, they prevent us from competing. They limit any price changes to small increments and keep in place the uneconomic price umbrellas which fostered the growth of CAPs. The Commission should reduce the number of baskets, bands, and zones to the smallest number necessary to group together services that are subject to similar levels of competition.

We endorse the plan for matching markets with regulation according to competitive criteria set forth in USTA's access reform proposal.<sup>22</sup> USTA has proposed criteria for classifying carrier access markets according to the availability of alternative supply present in each wire center. Before adopting the USTA plan, however, the Commission should eliminate banding requirements. Grouping services with similar supply and demand characteristics into switching and trunking baskets, combined with zone pricing, will have eliminated the need for any price bands.

Zone pricing should also be permitted in the switching basket and the current bands should be eliminated. In the San Francisco Bay area, the three major IXC's alone have seventeen dial tone-capable switches they will use to provide local switching. Most CAPs and cable companies are also installing their own switches (see below, p. 74), but even if they weren't,

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<sup>22</sup> See the Petition for Rulemaking of the United States Telephone Association, filed September 17, 1993, in RM-8356, Reform of the Interstate Access Charge Rules.



they could partner with IXC's to provide end-to-end service without using our switches.

When the USTA criteria are adopted, prices in Initial Market Areas (IMAs) and Transition Market Areas (TMAs) should be initialized based on zone prices. But thereafter market area pricing restrictions should take the place of both zones and price bands within both the switched and the trunking baskets. Price bands and zones would be unnecessary because within the baskets and market areas, prices would be constrained by the substitutability of services and the fact they would be subject to similar levels of competition.

Ultimately the number of baskets should be reduced to two. One basket would recover all explicit and implicit subsidies, such as the CCL charge. The other would include all price cap products. Services in contestable markets would be removed from price caps. The LEC would have to justify, with an opportunity for review and comment by our competitors and the Commission, the removal of any competitive services from price cap regulation according to the criteria in the USTA proposal.

#### C. Changes in Productivity Factors or Rate Levels.

The Commission says that "there may be a good case for revising the 3.3 percent and 4.3 percent productivity factors, requiring a one-time adjustment in rates, or both. Alternatively, it may be appropriate to adopt a permanent mechanism for adjusting the plan to reflect changes in interest

rates." Notice, para. 45. The Commission realizes that "it is crucial to avoid modifications that might undercut the incentives price caps seeks to create. Under price caps, this incentive is profitability.... For this incentive to work properly, the productivity factor should not be changed either to recapture all profits or to compensate LECs for relatively low efficiency performances in the past." Id.

Baseline Issue 3a: Changing the Productivity Factor or Adjusting the Price Cap Indexes. Increasing the productivity factor, or requiring a one-time reduction in rates, would be utterly inconsistent with price caps. The productivity adjustment should be eliminated to reflect competition and the substantial depreciation reserve deficiency that we incurred to provide universal service; or at the very least, reduced to a level that reflects historical TFP growth.

First, as the Commission itself suggests, "recapturing" past productivity gains through an increase in the productivity factor or a decrease in rate levels would be a complete, albeit thinly disguised retreat to ROR regulation. It would destroy the incentive to be efficient that makes price cap regulation work. Managers must have some assurance that cost savings will not be taken away through post hoc adjustments to the plan. If we believed that substantial productivity gains would merely trigger an increase in the productivity target in the future, our incentives would be little different from what they were under ROR regulation.

If the productivity offset were subject to increase based on strong earnings in the past, then the incentives to innovate, expand, and take on additional risks will be blunted, just as they were under traditional ROR regulation with a regulatory lag. In essence, the potential for a "recapture" of past productivity gains (i.e., higher earnings) punishes us for achieving exactly what pure price cap regulation is intended to achieve: rewards for increased efficiency while customers are protected through limits on price increases.

It may be tempting for some to believe that a higher productivity factor would give us an incentive to be more efficient. But in reality the level of the productivity adjustment (within reasonable limits) has little effect on the incentive to be more productive. This incentive to improve productivity arises from breaking the regulatory links among prices, cost, and profits.

Second, it's improper to infer actual productivity gains from the interstate earnings that we have reported since price cap regulation began. Too little time has elapsed for any statistician to have confidence those earnings represent a long-term trend. More important, our reported earnings are based on booked costs, not, as the Commission says with respect to exogenous events, "economic" costs. Two significant distortions in interstate earnings result from (1) arbitrary jurisdictional separations and (2) depreciation lives that are unrelated to the remaining economic lives of our assets or even whether they are still in service. Our reported interstate earnings increasingly

fail to jibe with reality. You won't find financial analysts touting us because of "strong interstate earnings."

AT&T is allowed to use more realistic lives in calculating its reported earnings on Basket 1 services.<sup>23</sup> Furthermore, the Commission knew that AT&T's earnings had substantially increased under price caps when it continued AT&T's price cap plan without major changes.<sup>24</sup> (AT&T's plan includes no sharing, and a 3% productivity factor.) Yet when we restate our own 1991, 1992, and 1993 results using a composite depreciation ratio we believe reflects the depreciation schedules AT&T uses, we find the following.<sup>25</sup>

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<sup>23</sup> Simplification of the Depreciation Prescription Process, 8 FCC Rcd. 8025, para. 93 (1993).

<sup>24</sup> See Public Notice, "Common Carrier Bureau Releases Updated Information in Price Cap Performance Review for AT&T (CC Docket No. 92-134); Discusses Procedures for Filing Copies of Comments on PC-Compatible Diskettes," 7 FCC Rcd. 6084 (1992).

<sup>25</sup> Pacific Bell recalculated its interstate earnings for 1991-1993 by substituting AT&T's composite depreciation factor for its own. AT&T's composite 1992 depreciation factor was calculated by dividing the total accruals for the year by the average plant in service for the year. The composite factor was applied to Pacific's average plant in service to calculate a new depreciation expense level. The depreciation and deferred tax reserves were adjusted consistent with the new depreciation expense level. Interstate ratios for depreciation were applied, income tax effects calculated and the rates of return were adjusted.

<u>Year</u>	<u>Pacific Bell's Latest Filed 492A Interstate ROR</u>	<u>Pacific Bell's Interstate ROR Restated Using AT&amp;T Dep Estimate</u>	<u>AT&amp;T's Interstate ROR</u>
1991	11.85%	8.18%	13.41%
1992	12.68%	9.24%	12.77%
1993	12.85%	9.41%	13.49%

L. R. Christensen and his associates have prepared a comprehensive study of LEC productivity increases based on total factor productivity ("TFP").<sup>26</sup> Because by definition it compares total outputs to total inputs, TFP measures the productivity of both intrastate and interstate operations. This is the best approach as it recognizes that many costs cannot be accurately separated by jurisdiction. The eight year period studied by Christensen adds to the validity of the results. The Christensen study shows that the incremental productivity of the LECs from 1984 to 1992 has been 1.7% greater than the national average embedded in the GNP-PI.

Moreover, TFP seems poised to decrease, not increase, as competition is introduced in our markets. Empirical evidence indicates that economies of density (defined as the productivity that results from an increase in the volume of services over a network of fixed size within a specific service area) were an important part of telecommunication productivity growth.<sup>27</sup> Competitive entry will cause us to lose market share in the high-margin, high-density metropolitan markets that are most

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<sup>26</sup> See USTA's Comments in this docket.

<sup>27</sup> Id.

subject to considerable economies of density. The Commission staff acknowledged this in its recent Staff Analysis, which said:

"[O]ne challenge may be that competitive service areas tend to be the dense metropolitan areas in which the LECs have deployed network facilities that enable significant productivity gains."<sup>28</sup>

As we lose customers in these dense metropolitan areas, we also lose economies of density previously achieved in those areas. This is reflected as reduced LEC output and slower LEC productivity growth. In order for incumbent price cap LECs to avoid a decline in productivity as a result of competitive entry, input costs would have to decrease at a pace at least equal to the pace by which output decreases. This will not be the case because the provision of exchange access services is capital intensive, with relatively high fixed input costs. These fixed costs will remain part of our input costs even after we lose a substantial share of revenue to competition. Thus it isn't the end of the story that the LECs' actual productivity growth has been about 1.7% greater than the national average. For most of the period measured, competition was insignificant. That will not be true in the next few years.

It may seem that to err on the side of caution is to assume greater productivity improvements than are likely to occur, because "consumers would benefit." That's not always the case. First, the conservative approach isn't to overstate the

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<sup>28</sup> Federal Communications Commission, "Federal Perspective on Access Charge Reform", Access Reform Task Force, April 30, 1993, p. 51.

productivity factor. If productivity turns out to be underprojected, rates can always be reduced by regulatory fiat, if they have not already been reduced by competitive pressure. But if productivity is overstated, the consequences of the overstatement continue forever, multiplying exponentially over time. Our rates in 2014 will still reflect the productivity factor reduction we made in 1994 -- compounded annually for twenty years. The productivity factor isn't a hurdle, but a high jump that grows higher on a geometric scale each year.

Second, consumers do not benefit from rate reductions if they distort our investment decisions or retard us from producing the services that consumers will demand in the future. Quite apart from whether it accurately tracks productivity, the productivity adjustment is an immediate, continuing, and compounding reduction to earnings, which reduces the internally generated funds available for reinvestment, and limits our ability to repay externally generated funds.

IXCs may also simply use productivity (as well as sharing) rate reductions to build competing facilities. There is a simple beauty to LEC productivity and sharing reductions if you are an IXC. They are a disinvestment in your competitors' assets, at the same time they make funds available for investment in your own.

Given that the LECs' historical differential productivity growth has been about 1.7%, and that competitive entry may eliminate this differential productivity growth completely, we recommend against adoption of any productivity

factor. If a productivity factor based on the historical record -- one such as 1.7% -- is adopted, we recommend that annual productivity adjustments be applied to a depreciation deficiency reserve that is based on realistic economic lives of our assets.

When this reserve has been fully amortized, the Commission should reexamine what long-term productivity may be expected for the services that remain under price cap regulation. There simply is no basis for assuming that a productivity factor based on all of today's telecommunications services will be valid for the services remaining under price cap regulation after several more years of intense competition.

An automatic mechanism for adjusting the plan to reflect changes in interest rates would be completely inappropriate. Not only would such an adjustment amount to a return to ROR regulation, but GNP-PI already reflects changes in interest rates. Any automatic adjustment would thus cause interest rate changes to be doubly stated: once in the adjustment, and once in GNP-PI. This is explained more below, beginning on p. 45.

GNP-PI vs. GDP-PI. The Commission should change the inflation index used in the price cap mechanism. The U.S. Department of Commerce now publishes the Gross Domestic Product fixed weight price index (GDP-PI). GDP-PI offers a number of advantages over the present Gross National Product (GNP) fixed weight price index. First, the Bureau of Economic Analysis, U.S. Department of Commerce, began using the GDP-PI as the indicator of price changes in domestic output effective with the reports of



the fourth quarter 1991 results. GDP measures domestically employed factors of production. GNP measures the output of final goods and services produced by U.S. factors of production, no matter where employed. GDP is slightly lower than GNP as it excludes that small portion of output produced abroad by U.S. owned factors of production. GDP is the measurement used by many other countries as the most representative gauge of overall economic performance.

The use of the GDP-PI offers the advantage of more lead time in preparing the annual filing since advance GDP-PI data are available while advance GNP-PI figures are not. A change in index will enable the use of the 45 day estimate GDP-PI in the April filing and eliminate the need for a true-up to the 75 day GNP-PI in the June compliance filing. The quantitative differences between the GNP-PI and GDP-PI are very small<sup>29</sup> and of little practical significance. A shift to the GDP-PI will reduce administrative burden and provide a more representative price index.

#### Baseline Issue 3b: Are LEC Profits Reasonable?

The Commission notes that LEC earnings, on average, increased from 11.25% at the start of price caps to an average of 12.25% in 1992. The Commission's suggestion that these earnings are excessive is curious for a number of reasons.

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<sup>29</sup> Average difference between the growth rates in the series from 1982 to 1993 is .01%.